ADUR & WORTHING COUNCILS

Supplementary Requirements for Surface Water Drainage Proposals

Any proposed surface water scheme must consider sustainable drainage principles.

SuDS Selection

The following destinations must be considered for surface runoff in order of preference:

1. Discharge into the ground (infiltration);

2. Controlled discharge to a surface water body;

3. Controlled discharge to a surface water sewer.

Surface water must not be discharged into the foul sewer system. Infiltration structures include soakaways, basins, swales and permeable paving. Discharge to surface water bodies and surface water sewers must be restricted to an agreed rate.

SuDS selection hierarchy based on:
CIRIA C753 - The SuDS Manual
BS8582:2013 – Code of Practice for Surface Water Management for Development Sites
Approved Document H of the Building Regulations

For additional guidance, please refer to the ' West Sussex County Council (Lead Local Flood Authority) Policy For The Management of Surface Water'
https://www.westsussex.gov.uk/media/12230/ws_llfa_policy_for_management_of_surface_water.pdf

Infiltration Drainage Design

Any infiltration drainage design must include adequate winter groundwater monitoring data to determine the highest winter groundwater table. Residential developments of ten properties or more will require ground water monitoring to be carried out between October and March inclusive. The extent of monitoring required for smaller developments will be subject to agreement with the Council's Engineers but will need to capture likely peak groundwater levels during the winter period. This is likely to be during January/February but is dependent on the weather, etc up to that point.

Adequate freeboard must be provided between the base of the soakaway structure and the highest recorded groundwater level identified in that location.

Infiltration rates for soakage structures are to be based on percolation tests undertaken at an agreed time during the winter period and at the location and depth of the proposed structures. The percolation test depth is also dependent on the peak groundwater levels recorded at that location, ensuring that the test depth does not exceed the depth to the peak groundwater level recorded. The percolation tests must be carried out in accordance with

BRE 365, CIRIA R156 or a similar approved method. For the purpose of design, the percolation rate must be applied to the sides of the infiltration structure only and the rate for the base must be zero, unless otherwise agreed. In respect to infiltration basins or permeable pavements, the percolation rate is generally applied to the base only.

There must be provision to ensure that there is capacity in the system to contain the 1 in 100 year storm event plus 40% on stored volumes, as an allowance for climate change and cater for the 1 in 10 year storm event plus climate change between the invert of the lowest entry pipe into the infiltration structure and the base The infiltration structure should also drain 50% of its total volume in 24 hours or less for both the 1 in 10 (plus 40%) and 1 in 100 year (plus 40%) storm events, in order to provide spare capacity for subsequent storms.

Restricted Discharge

Discharge to a watercourse or surface water sewer must be restricted to the estimated mean greenfield runoff rate (Q_{bar}), using the proposed positively drained area, rather than the entire greenfield site area, and the allowable runoff rate reduced accordingly. Brownfield sites, which require attenuated discharge, should also restrict flows from all events to greenfield QBar. If this is not achievable flow should be restricted as close to this as is achievable, with a minimum requirement of 50% betterment. . Flow restriction is to be achieved using a suitable controlled outflow with a minimum outflow of 2 l/s, unless otherwise agreed, with satisfactory blockage mitigation measures specified. Greenfield runoff rates can be derived from IH124 or a similar approved method. Any storage design must be submitted with winter groundwater monitoring data where applicable to ensure there will be no detrimental effect on the structure or storage. Storage areas are preferred to be in an 'open' form such as basins/ponds, rather than underground tanks.

Flow Exceedance Routes

The drainage design should show flow routes through the proposed development, demonstrating where surface water will be conveyed for three types of flow:

1. Low flow routes

Regular flow from source control features such as permeable pavements should travel in low flow channels through the development in a controlled way contributing to landscape quality.

2. Overflows

In the event of local blockages or surcharge a simple overflow arrangement should allow water to bypass the obstruction and return to the management train sequence until conditions return to normal.

3. Exceedance routes

When SuDS are overwhelmed by exceptional rainfall, then exceedance routes are required to protect people and property. These provide unobstructed overland flow routes from the development and should be considered for all drainage schemes. Exceedance routes should also be protected from future changes in land use.

Culverting a Watercourse

Culverting (piping) a watercourse is not advised unless there is no alternative. The resulting reduction in storage volume, flow capacity and habitat potential would be unacceptable. Culverted watercourses are also more difficult to maintain due to the limited accessibility.

Land Drainage Consent must be sought from the Lead Local Flood Authority (West Sussex County Council), or its agent (Adur and Worthing Councils – engineers@adur-worthing.gov.uk), prior to starting any works (temporary or permanent) that affect the flow of water in the watercourse. Such works may include culverting, channel diversion, discharge of flows, connections, headwalls and the installation of trash screens.

Please also refer to the 'culvert policy' and consent application form available on the West sussex County Council website; https://www.westsussex.gov.uk/fire-emergencies-and-crime/dealing-with-extreme-weather/dealing-with-flooding/flood-risk-management/ordinary-watercourse-land-drainage-consent/

The development layout must take account of any existing watercourses (open or culverted) to ensure that future access for maintenance is not restricted.

See also:
Land Drainage Act 1991 (amended 1994)

Maintenance and Management

Ditches and watercourses (including culverts) should retain a three metre easement with access that allows for its future maintenance.

Details of the maintenance and management of the SuDS system are to be set out in writing in a site specific maintenance manual. This manual shall include details of the financial management and arrangements for the replacement of components at the end of the manufacturers recommended design life. This document is then to be submitted as part of the planning process.

References

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Drainage and waste disposal
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Woods-Ballard, B.; Kellagher, R. et al
ISBN: 978-0-86017-760-9, 2015

CIRIA
R156 Infiltration Drainage – Manual of Good Practice
Bettess, R.
ISBN: 0 86017 457 3

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BS8582:2013 – Code of Practice for Surface Water Management for Development Sites
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